BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 9: e178685
doi: 10.3897/biss.9.178685

OPEN ACCESS

Conference Abstract

Hidden in the Data: Unlocking the Potential of Brazil's Sociobiodiversity for a Sustainable Bioeconomy

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Received: 19 Nov 2025 | Published: 27 Nov 2025

Citation: Mendes dos Santos AC, Carvalho Ribeiro SM (2025) Hidden in the Data: Unlocking the Potential of Brazil's Sociobiodiversity for a Sustainable Bioeconomy. Biodiversity Information Science and Standards 9: e178685. https://doi.org/10.3897/biss.9.178685

Abstract

Brazil harbors the richest biodiversity on Earth, accounting for 15–20% of all known species worldwide (Lewinsohn 2006). Its territory also encompasses significant cultural diversity, represented by 355 officially recognized Indigenous lands, 253 Afro-descendent territories, and 28 groups of traditional communities such as rubber tappers, coconut breakers and veredeiros (de Mendonça 2009). Despite this potential, the economy remains anchored in an agro-export model based on exotic commodity crops – most notably soybeans, strongly associated with deforestation and rising inequalities (Lobão and Staduto 2020). In contrast, Brazil's sociobiodiversity, the combination of socio-cultural and biological richness, underpins the potential for a sociobiodiversity-based bioeconomy (Garrett et al. 2024), an approach that integrates traditional knowledge, sustainable use of native species, and innovation into broader economic agendas. Yet, the potential for developing this bioeconomy remains constrained. A central barrier is the invisibility of sociobiodiversity in official statistics.

To examine how sociobiodiversity products and local markets are represented in official datasets, we conducted a local-scale study in Northern Minas Gerais, within the Cerrado biome – a global biodiversity hotspot increasingly threatened by agribusiness-driven deforestation. We compared production data from the Brazilian Institute of Geography

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and Statistics (IBGE) and subsidy data from the National Supply Company (Conab) with figures provided by the Cooperative Grande Sertão, a leading local cooperative that works directly with 400 families across nearly 40 municipalities. IBGE is the official agency responsible for compiling national statistics on the production of non-timber forest products such as açaí (*Euterpe oleracea*), Brazil nut (*Bertholletia excelsa*) and natural rubber (*Hevea brasiliensis*), among others, and Conab is the governmental company that monitors products eligible for public procurement. Our results revealed two main key messages. First, value chains of native species that are socially and economically central to traditional communities are largely absent from systematic monitoring regarding their use, production, or market flows, corroborating previous studies (Porro 2019, Carvalho Ribeiro et al. 2024), and excluded from public policies. Of the 18 native species collected and commercialized by agroextractivists locally, only four (umbu – *Spondias tuberosa*, mangaba – *Hancornia speciosa*, pequi – *Caryocar brasiliensis*, and buriti – *Mauritia flexuosa*) are tracked in official datasets. Only five species, including macaúba (*Acrocomia aculeata)*, are recognized under public procurement programs, despite their socio-economic relevance. Even for pequi, the most consolidated product, official data is incomplete (Fig. 1). Among the 1,434 municipalities in the Cerrado, its natural distribution area, only 292 (20%) appear in IBGE statistics, as the institute only records volumes above one ton. This implies that in 42% of municipalities, pequi production exists but remains unregistered, while in 38% there is no data at all.

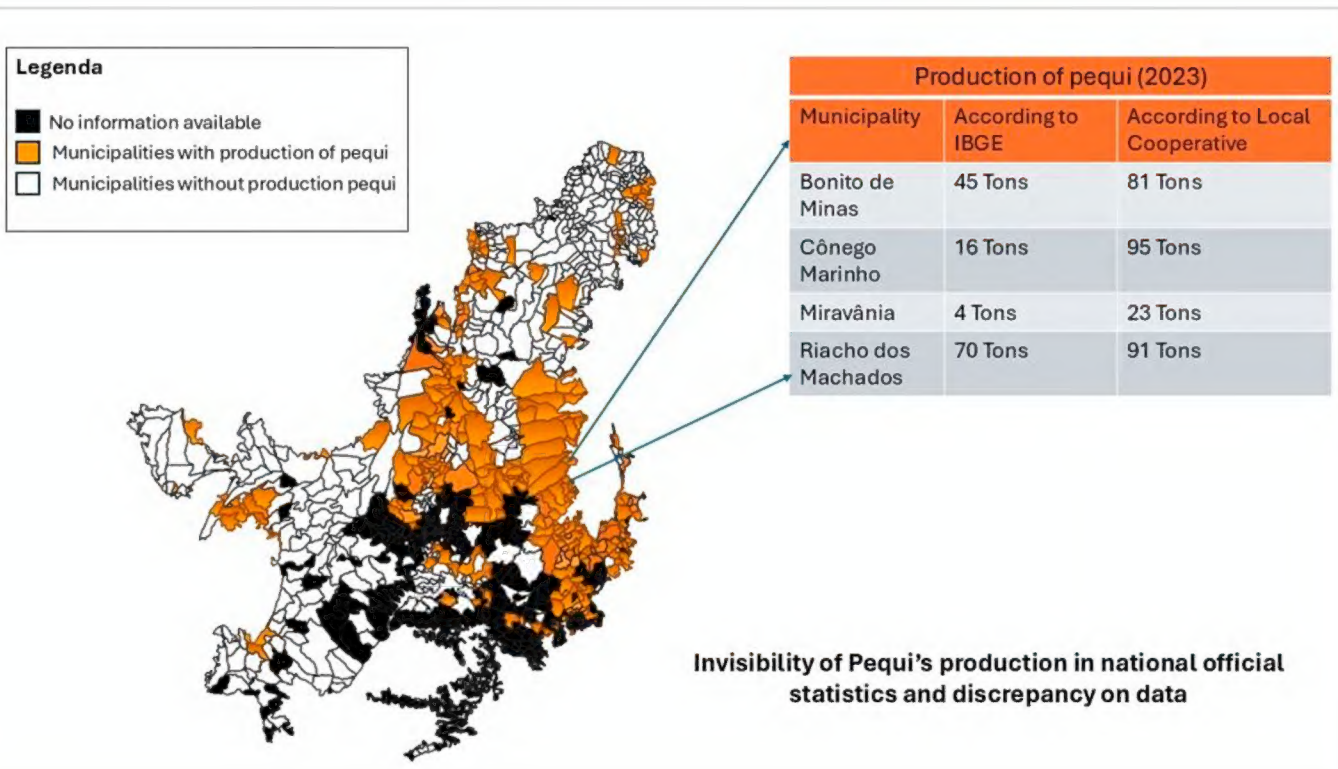

Figure 1.

Map showing IBGE data on pequi production across municipalities in the Cerrado biome: yellow indicates producing municipalities, white indicates no production, and black indicates lack of data. The accompanying table compares IBGE records with figures from the local cooperative for the four main producing municipalities. Source: Ana Carolina Mendes dos Santos and Sónia Maria Carvalho Ribeiro. License: Creative Commons Attribution 4.0 (CC-BY 4.0).

Our second finding was the marked discrepancy between official statistics and actual production reported by cooperatives. In four leading pequi-producing municipalities, official records diverged substantially from local data. In Cônego Marinho, for instance, just 30 agroextractivists collected six times more pequi than IBGE registered for the entire municipality in 2023, and in Miravânia, two collectors harvested more than five times the official figure (Fig. 1). These discrepancies may arise from multiple factors, including the informal or subsistence character of many extractive activities. As a result, the national statistics may fail to capture the full economic, ecological, and cultural importance of native species to rural and traditional communities. Understanding these data mismatches is essential for improving the accuracy and inclusiveness of biodiversity and bioeconomy indicators.

Our study underscores the need to strengthen local monitoring capacities and create integrated data systems that combine official records with community-based knowledge to unlock the transformative potential of Brazil's sociobiodiversity. Investments in territorialized data governance are essential to ensure more accurate representation of sociobiodiversity value chains, enabling place-based policies that align biodiversity conservation with inclusive economic development. Strengthening the visibility of native species in data systems is needed not only to improve accuracy but also to ensure informed decision-making, equitable benefit-sharing, and resilience in the face of environmental and social challenges. Making sociobiodiversity visible in data is a prerequisite for building a sustainable and just bioeconomy.

Keywords

non-timber forest products, public policy, monitoring, official statistics, value chains

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Presented at

Living Data 2025

Author contributions

A.C.M.S: Conceptualization, data curation, formal analysis, funding acquisition: investigation, methodology, supervision, validation, visualization, writing—original draft, writing—review and editing. S.M.C.R.: formal analysis, supervision, validation.

Conflicts of interest

The authors have declared that no competing interests exist.

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